MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2015/2016 SESSION

TWS 2551 – Web Services

(All sections / Groups)

7 MARCH 2016
9.00 p.m – 11.00 a.m
(2 Hours)

INSTRUCTIONS TO EXAMINERS

1. This question paper consists of 5 pages only.
2. Attempt **FOUR** out of FIVE questions. All questions carry equal marks and the distribution of the marks for each question is given.
3. Please write your answers in the Answer Booklet provided.

Question 1

a) One of the main advantages of web services is interoperability. What makes interoperability possible in web services? (2 marks)

b) In the web service technical stack, which layers are considered optional? Justify your answer. (3 marks)

c) In the web service architecture, which components are considered non-optional? Justify your answer. (3 marks)

d) What are the difference and the similarity between web services and distributed systems? (2 marks)

Question 2

Database

online attendance (11)

online attendance (11)

- attendance
- comment
- course
- faculty
- forum_answer
- forum_question
- lecturer
- lec_course
- section
- student
- stu_course

SQL query:

```
SELECT *
FROM `course`
LIMIT 0 , 30
```

[Edit] [Explain SQL] [Create PHP Code] [Refresh]

Query results operations

Print view | Print view (with full texts) | Export

Show : 30 row(s) starting from record # 0

in horizontal mode and repeat headers after 100 cells

	Course_ID	Course_section	Course_sem	Course_type	Section_ID	course_name
	TOS1211	TC101	3	major	TC101	Operation System
	TDB2111	TC102	1	major	TC102	Database system
	TEM1111	TC102	1	math	TC102	INSERT INTO `section` (`Secti
	TCE1111	TC101	1	core	TC101	Computer Progrmming

a) Write the DTD for the above MYSQL table (consider only the course table). (4 marks)

b) Write the XML Schema that is equivalent to the DTD in question 2(a). (4 marks)

Continued.....

c) Write one (1) XML document that conforms to the DTD in question 2(a). (2 marks)

Question 3

a) List down three SOAP fault codes and explain each of the fault codes. (3 marks)

b) Why do we need namespace in an XML document? How does namespace works? Why do we need to refer the prefix to URL value and what normally does the URL contains? (5 marks)

c) Why UDDI is not that popular anymore as compared to third party repository? (2 marks)

Question 4

a) List down two (2) functions of XSLT. (2 marks)

b) Consider the following C# code.

```
[WebMethod]
public void personal(string name, int[] array)
{
  // implementation omitted
}
```

Write the SOAP request for the above web method. (4 marks)

c) Write the SOAP response for the above web method. (4 marks)

Question 5

```
<?xml version="1.0" encoding="UTF-8"?>
<definitions xmlns="http://schemas.xmlsoap.org/wsdl/"
xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
xmlns:tns="http://www.dataaccess.com/webservicesserver/" name="NumberConversion"
targetNamespace="http://www.dataaccess.com/webservicesserver/">
<types>
```

Continued.....

```
<xs:schema elementFormDefault="qualified"
targetNamespace="http://www.dataaccess.com/webservicesserver/">
<xs:element name="NumberToWords">
<xs:complexType>
<xs:sequence>
<xs:element name="ubiNum" type="xs:unsignedLong"/>
</xs:sequence>
</xs:complexType>
</xs:element>
<xs:element name="NumberToWordsResponse">
<xs:complexType>
<xs:sequence>
<xs:element name="NumberToWordsResult" type="xs:string"/>
</xs:sequence>
</xs:complexType>
</xs:element>
<xs:element name="NumberToDollars">
<xs:complexType>
<xs:sequence>
<xs:element name="dNum" type="xs:decimal"/>
</xs:sequence>
</xs:complexType>
</xs:element>
<xs:element name="NumberToDollarsResponse">
<xs:complexType>
<xs:sequence>
<xs:element name="NumberToDollarsResult" type="xs:string"/>
</xs:sequence>
</xs:complexType>
</xs:element>
</xs:schema>
</types>
<message name="NumberToWordsSoapRequest">
<part name="parameters" element="tns:NumberToWords"/>
</message>
<message name="NumberToWordsSoapResponse">
```

Continued.....

```
<part name="parameters" element="tns:NumberToWordsResponse"/>
</message>
<message name="NumberToDollarsSoapRequest">
<part name="parameters" element="tns:NumberToDollars"/>
</message>
<message name="NumberToDollarsSoapResponse">
<part name="parameters" element="tns:NumberToDollarsResponse"/>
</message>
<portType name="NumberConversionSoapType">
<operation name="NumberToWords">
<documentation>Returns the word corresponding to the positive number passed as parameter.
Limited to quadrillions.</documentation>
<input message="tns:NumberToWordsSoapRequest"/>
<output message="tns:NumberToWordsSoapResponse"/>
</operation>
<operation name="NumberToDollars">
<documentation>Returns the non-zero dollar amount of the passed number.</documentation>
<input message="tns:NumberToDollarsSoapRequest"/>
<output message="tns:NumberToDollarsSoapResponse"/>
</operation>
</portType>
<binding name="NumberConversionSoapBinding" type="tns:NumberConversionSoapType">
<soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>
<operation name="NumberToWords">
<soap:operation soapAction="" style="document"/>
<input>
<soap:body use="literal"/>
</input>
<output>
<soap:body use="literal"/>
</output>
</operation>
<operation name="NumberToDollars">
<soap:operation soapAction="" style="document"/>
<input>
<soap:body use="literal"/>
```

Continued.....

```
</input>
<output>
<soap:body use="literal"/>
</output>
</operation>
</binding>
<service name="NumberConversion">
<documentation>The Number Conversion Web Service, implemented with Visual DataFlex, provides functions that convert numbers into words or dollar amounts.</documentation>
<port name="NumberConversionSoap" binding="tns:NumberConversionSoapBinding">
<soap:address
location="http://www.dataaccess.com/webservicesserver/numberconversion.wso"/>
</port>
</service>
</definitions>
```

a) Refer to the WSDL in Question 5. How many functions were listed in the WSDL? List down all the methods together with the parameters and the return type. (3 marks)

b) Refer to the WSDL in Question 5. What is the class name of the service and where is the service located? (2 marks)

c) What is the difference between RPC and document style? (2 marks)

d) How do the quality of service are measured? (3 marks)

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